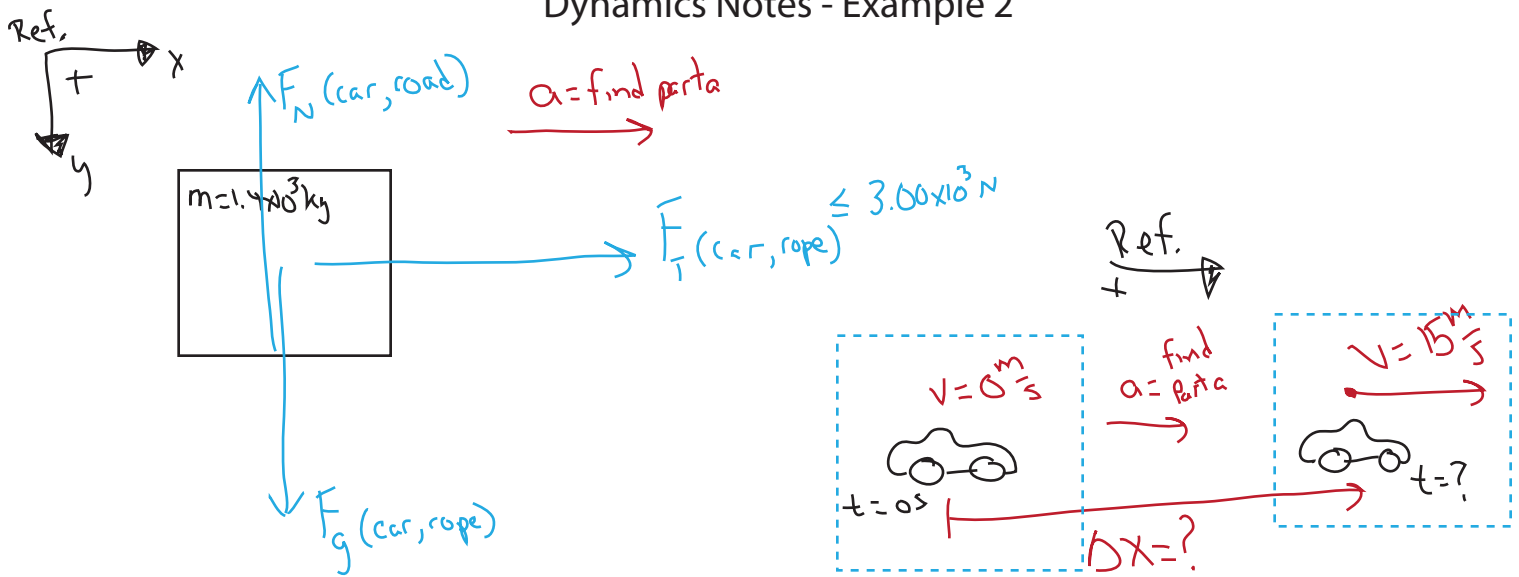


Dynamics Notes - Example 2



Part a

Known/find

$$m = 1.4 \times 10^3 \text{ kg}$$

$$F_T = 3.00 \times 10^3 \text{ N}$$

$$a = ? (\text{find})$$

Equation/solution

x -dir

$$\sum F_x = ma_x$$

$$+F_T = ma_x$$

$$\frac{F_T}{m} = a_x$$

$$\frac{3.00 \times 10^3 \text{ N}}{1.4 \times 10^3 \text{ kg}} = a_x$$

$$a = 2.14 \frac{\text{m}}{\text{s}^2}$$

Part b

Known/find

$$v_0 = 0 \frac{\text{m}}{\text{s}}$$

$$+v_f = 15 \frac{\text{m}}{\text{s}}$$

$$+a = 2.14 \frac{\text{m}}{\text{s}^2}$$

$$t_f = ? (\text{find})$$

Equation/solution

$$+v_f = v_0 + at$$

$$v_f = at$$

$$\frac{v_f}{a} = t$$

$$\frac{15 \frac{\text{m}}{\text{s}}}{2.14 \frac{\text{m}}{\text{s}^2}} = t$$

$$7.01 \text{ s} = t$$

Response

a) $+2.14 \frac{\text{m}}{\text{s}^2}$

b) 7.01 s